

REMARKS

I. Statement of Substance of Interview

In an Examiner Interview conducted September 27, 2010, Examiner Chiu reviewed Applicants' proposed amendments to claim 37. Upon review, Examiner Chiu indicated that the proposed claim amendments successfully overcomes the existing rejection of claims 37-39 under 35 U.S.C. § 102(e) based on Harada (U.S. Patent Application Publication No. 2002/0195643). The proposed amendments to claim 37, previously reviewed by Examiner Chiu, are finalized herein.

II. Status of Claims

Claims 21-40 are pending in the application.

Applicants thank the Examiner for indicating that Claims 21-36 and 40 are in condition for allowance.

Claim 37 is amended to specify the order in which the layers of the gate insulating film are stacked, and to recite that the silicon oxide film, metal oxide film and metal silicate film do not contain nitrogen. Support for the amendments can be found, for example, at page 21, lines 3-18 of the specification.

No new matter is added. Accordingly, Applicants respectfully request entry and consideration of the Amendment.

III. Response to Claim Rejection Under 35 U.S.C. § 102(e)

Claims 37-39 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Harada.

Applicants respectfully traverse, and submit that claims 37-39 are patentable over Harada, at least for the following reasons.

Presently amended claim 37 is directed to a semiconductor device. The semiconductor device includes a gate insulating film having a layered structure. The layered structure of the gate insulating film has from the silicon substrate side: (a) a first silicon oxide film which does not contain nitrogen, (b) a metal oxide film or the metal silicate film which does not contain nitrogen, and (c) a second silicon oxide film which contains nitrogen, and the films (a), (b) and (c) are stacked in this order.

In contrast, at Fig. 1 and paragraph [0075], Harada discloses a gate insulating film 11 having a layered structure, wherein the silicon oxynitride film contains hafnium 11b, hafnium oxide 11a, and a silicon-containing hafnium oxide containing nitrogen 11c, stacked in this order. Harada does not disclose (a) the first silicon oxide film which does not contain nitrogen of claim 37.

Moreover, at page 21, lines 3-18, the specification discloses:

Further, apart from the structures as shown in aforementioned FIG. 1 to FIG. 3 wherein an extra thin silicon oxide film is laid on the interface between a high-dielectric-constant insulating film and a silicon substrate, with the view of improving interfacial electric characteristics, there can be given, effectively, another structure comprising an extra thin silicon oxide film laid on the top of a high-dielectric-constant insulating film in order to improve electric characteristics of the interface with a gate electrode (for example, a polysilicon electrode or a polysilicon germanium electrode) that is to be set on the top of a gate insulating film, wherein a silicon oxide film layer on the surface side (on the gate electrode side) (or in a region at a distance from the silicon substrate interface) can be selectively nitrided. In this case, the gate insulating film has, for instance, a layered structure having, from the silicon substrate side, a first silicon oxide film, a film made of either metal oxide or metal silicate and a second silicon oxide film, and nitrogen is introduced only into the second silicon oxide film, while no nitrogen is introduced into the first silicon oxide film or the film made of either metal oxide or metal silicate.

As described in the specification, since the semiconductor device of claim 37 comprises a gate insulating film which has the above layered structure, the interfacial electric characteristics are further improved. Harada does not disclose such effects.

Based on the above, claim 37 is patentable over Harada. Claims 38 and 39 are also patentable, at least by virtue of their dependence from claim 37.

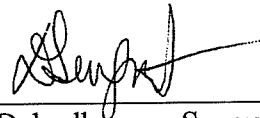
Accordingly, Applicants respectfully request reconsideration and withdrawal of the §102(e) rejection of the claims.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



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